

Researchers Restore Blind Dogs' Sight

Following A Path To Biotechnology

Did you know ...DNA molecules are being used in an attempt to construct miniature machines? ...scientists have genetically altered chicken to produce cancer-fighting protein in egg whites? ...genetically altered giant artichokes are being grown in Spain to produce electricity? ...researchers have restored sight to blind dogs with a genetically altered gene? These are but a few of the ways advances in biotechnology affect different aspects of our lives.

What exactly is biotechnology?

Biotechnology takes advantage of biological processes in very precise ways to make products or provide services like those listed above. Other products include proteins used in medications, a DNA "fingerprint" used to identify certain individuals, or salmon raised in a fish farm.

Why study biotechnology? It affects every aspect of our daily lives, so understanding it can help us make decisions that affect our health, our environment and our future. The biotechnology pathway can lead to a wide variety of exciting careers--some which have not even been discovered! Biotechnology careers include: health care, law and ethics, pharmaceuticals, agriculture, bioinformatics, genomics, aquaculture, and biomanufacturing.

What courses should I take in high school?

Biotechnology requires a good foundation in Math--at least **Algebra II**. **English and Language Arts** are always essential. **Biology** and **Chemistry** provide the scientific background. An introduction to **Computers** is very helpful, especially if you are interested in the new Bioinformatics field. **Microbiology** would also be helpful. **Biotechnology Programs** are also offered at some regional vocational centers in NH.

Where can I study Biotechnology in college?

The **New Hampshire Community Technical Colleges** offer a certificate and a two-year associate degree program that articulates (will transfer credits) to the **Rochester Institute of Technology** and **UNH**. The **University of New Hampshire** offers degrees in Microbiology; Molecular, Developmental, and Cellular Biology; and Biochemistry. **Plymouth State College** offers a Bachelor of Science degree in Biotechnology. There is a graduate cooperative Bioinformatics program at **Northeastern University** and **Boston University**.

For more information, contact Kathleen H. Totten, Eastern Region Partnership at 433-1964.

NH Pathways

WHAT Is A Career Pathway?

A Career Pathway is a plan designed by you, the student, to make sure that what you learn each day in school is useful in your life. Your PATHWAY will help you put things in focus, giving you a better idea of what's out there in the world, what you want to do and what you need to be successful.

Are You SURE It's For Me?

Absolutely! No matter what, some day you will need to get a job. You may first go to college or get some other advanced education. But at some point you will enter the workforce. The bottom line is the GOOD JOBS of the future will go to people with skills. The skills, attitudes and behaviors needed by the working people of the future include:

- **Academic proficiency** in science, communications, mathematics, and technology; problem solving, and reading and understanding written material
- **Personal Management Skills** such as decision making, setting and meeting goals, responsibility, organization, flexibility and initiative
- **Teamwork Qualities** demonstrated in listening, responding, contributing and leading

HOW Do I Benefit?

Your pathway prepares you so that you know what it takes to get a good job. It:

- Helps you see how school subjects relate to the world of work
- Makes your classes more interesting
- Helps you figure out what you're good at
- Opens your mind to all kinds of career opportunities
- Shows you the education and skills needed to get the good jobs
- Makes your education fit YOU

Submitted by: Judy King, So.Central STC Partnership

There continues to be a serious shortage of IT workers throughout the country.

Information Technology Association of America and William M. Mercer, Inc.

WHAT is My Role?

Do everything you can to focus on your future!

- Study hard and do your best in school and extracurricular activities
- Take advantage of every opportunity to learn more about the real world through job shadowing, work experience, career fairs, and community speakers
- Talk to your parents and other adults about their jobs
- Go to school every day, on time, and with a good attitude--like a job
- Talk to your counselors and teachers
- Participate in career and college fairs

THE INFORMATION TECHNOLOGY (IT) CAREER PATHWAY

Students in school develop the IT skills that they need for learning in the classroom. Students make charts and graphs on computers to illustrate mathematics problems. They write and illustrate stories to develop language arts skills. They use the Internet to conduct research for term papers in English, Social Studies and foreign language classes. They use word processing to write their reports and format them with references and bibliographies.

WHO NEEDS "IT"?

We all do, that's who.

WHAT IS "IT"?

Information Technology (IT) is the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware.

WHAT IS THE PURPOSE OF THE IT CAREER PATHWAY?

To provide a curriculum to help prepare today's students to become tomorrow's "technically literate" workforce.

WHAT WILL YOU, THE TECHNICALLY LITERATE STUDENT, BE ABLE TO DO?

- Read, understand and communicate in the language of a career field
- Use mathematical skills, reasoning and understanding
- Understand technical concepts, principles and procedures
- Use basic technology

IS THERE A NEED FOR A TECHNICALLY LITERATE WORKFORCE?

Yes, in nearly all industries. Businesses from the largest manufacturer to the smallest store rely on information technology to compete in a global economy. The National Dissemination Center for Career & Technical Education reported in a brief that "two-thirds of the fastest growing occupations over the next decade are in the computer and health fields." In addition, NH Employment Security's Economic and Labor Market Information Bureau reinforced the need to develop an IT Career Pathway with the following statistics:

- Computer-related jobs hold four of the five fastest growing occupations
- Systems Analysts will both add large numbers of new jobs and grow at a high rate
- Jobs that require a bachelor's degree, along with some work experience, will register the most growth

WHAT IS INCLUDED IN THE PATHWAY?

The IT Career Pathway (ITCP) includes core technical, academic and employability skills in four occupational areas: interactive media, programming and software development, network systems, and information services and support.

WHAT IS IT & ME?

It is strongly recommended that ALL schools offer a foundation course that delivers skills and competencies needed to live and learn within today's highly technological society. **IT & ME** is a model curriculum developed by business teachers who participated in the Western Region's IT Educator in the Workplace Summer 2001 Institute. The course outline, along with lesson plans, is featured in the IT Resource Guide. The curriculum integrates technical and employability skills around the four IT occupational strands.

For additional information, please contact Marsha Miller, 332-0925 (mamiller@ttlc.net) or Ken Forcier, 464-4349 (kmf@conknet.com), Western Region Business and Education Partnership

DID YOU KNOW??

The fastest growing IT jobs in NH from 1998-2008 will be:
Computer Scientist
Computer Support Specialist
Systems Analyst
Desktop Publishing
Database Administrator